

APR/FY06

MAKUA MILITARY RESERVATION

Hawaii

**Army Defense Environmental
Restoration Program
Installation Action Plan**

Final 26 September 2006

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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations, necessary remedial actions, and long term maintenance.

In an effort to coordinate planning information between the restoration manager, U.S. Army Environmental Center (USAEC), Makua Military Reservation, Installation Management Agency-Pacific Area Regional Office (IMA-PARO), executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules, and budgets for all major Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is therefore subject to change

The following contributed to the formulation and completion of this Installation Action Plan during a planning workshop held on April 24-27, 2006:

US Army Environmental Center
EEI for US Army Environmental Center
US Army Garrison Hawaii
ICI for US Army Environmental Center
DIMCO for US Army Engineer Research and Development Center
State of Hawaii Department of Health, HEER Office

Acronyms & Abbreviations

AEC	Army Environmental Center (formally called USATHMA)
AEDB-R	Army Environmental Database – Restoration
bgs	below ground surface
BRAC	Base Realignment and Closure
CALFEXs	Company Level Combined Arms Live Fire Exercises
CC	Compliance-Related Cleanup
CCAAC	Company Combined Arms Assault Course
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (1980)
CTC	Cost-to-Complete
CTT	Closed, Transferred, or Transferring
DOD	Department of Defense
EIS	Environmental Impact Survey
EPA	(United States) Environmental Protection Agency
FS	Feasibility Study
FUDS	Formerly Used Defense Sites
FY	Fiscal Year
IAP	Installation Action Plan
IMA-PARO	Installation Management Agency-Pacific Area Regional Office
IRA	Interim Remedial Action
IRP	Installation Restoration Program
K	Thousand
LUC	Land Use Controls
MMR	Makua Military Reservation
MMRP	Military Munitions Response Program
NE	Not Evaluated
NFA	No Further Action
NPL	National Priorities List
OB/OD	Open Burning/Open Detonation
OE	Ordnance and Explosives
PA	Preliminary Assessment
RA	Remedial Action
RAB	Restoration Advisory Board
RAC	Remedial Action - Construction
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
REM	Removal
RI	Remedial Investigation
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
TAPP	Technical Assistance for Public Participation
TRC	Technical Review Committee
USACE	United States Army Corps of Engineers
USAEC	U.S. Army Environmental Center
UXO	Unexploded ordnance

Installation Locale: The Makua Military Reservation (Makua) occupies approximately 4,190 acres, 38 miles northwest of Honolulu. The facility is near Kaena Point, and also the adjoining Makua and Kahanahaiki Valleys. The facility is bordered on the west by the Pacific Ocean and on the east by the Waianae Mountain Range.

Installation Mission: The primary use of Makua has been for company level combined arms live fire exercises (CALFEXs) by the US Army 25th Infantry Division (Light) which is based out of Schofield Barracks. This allowed for training for combined artillery, ground troops, and helicopters assaulting a mock military objective.

Lead Organization: Installation Management Agency, Pacific Region

Lead Executing Agency: Installation

Regulatory Participation:

State: Hawaii Department of Health

National Priorities List (NPL) Status: Makua is a live fire training range and is not listed on the NPL list. There is a RCRA subpart B Permit for the Open Burning/Open Detonation area that is in interim deferred closure at this time. This closure is currently being reviewed by EPA (Region 9).

Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status: No RAB/TRC/TAPP has been established at this time.

Installation Program Summaries **IRP**

There are no IRP sites at Makua.

MMRP

Primary Contaminants of Concern: OE, Lead, Arsenic

Affected Media of Concern: Soil

Estimated Date for RIP/RC: September 2017 (with indefinite LUCs)

Funding to date (up to FY05): \$ 0

Current year funding (FY06): \$ 258,000

Cost-to-Complete (2007+): \$15,097,000

BRAC: There are no BRAC sites at Makua.

CC: There are no CC sites at Makua.

Installation Historic Activity

There has been a long history of military use of the Kaena point area. In the 1920s, the US Armed Forces used three parcels on the upper Makua Valley floor for howitzer emplacements. The entire Makua – Kaena Point area was occupied under Martial Law after December 7, 1941 for training and security operations, until 1946. In December 1942, the US Army issued a real estate directive for 6,600 acres at Makua that were already being used for artillery and aerial bombing practice. Private parcels were condemned and territorial property was conferred by the Territorial Governor's consent. The entire Makua Valley has been used extensively for bombing and infantry training from 1942 to the present. In 1964, the active range was reduced to the present Makua site of 4,190 acres. The approximate 2400 acres was returned to the state and is the focus of the MMRP investigation. This portion of the training area was not used as the primary target.

Current Activity: In 1988, the US Army completed construction of a company combined arms assault course (CCAAC) at Makua which was used for 10 years. The primary use of Makua has been for company level combined arms live fire exercises (CALFEXs) by the US Army 25th Infantry Division (Light) which is based out of Schofield Barracks. In September 1998, the US Army temporarily suspended training due to several wildfires. A lawsuit was then filed against the Army and training continued to be restricted to non-live fire activities. Live fire training was reinstated in October 2001 under a negotiated settlement agreement and continues to this day. An EIS is being prepared to finalize the type and extent of live fire training at Makua Military Reservation.

A visual inspection of the Makua Valley has shown widespread distribution of shrapnel, spent cartridges and lead bullets as a result of 50+ years of live-fire training. Sampling has shown only a small area of explosives in porewater samples collected from the unsaturated zone below the Open Burning/Open Detonation area. Groundwater sample results have been below Region 9 PRG and drinking water standards.

MAKUA MILITARY RESERVATION

Military Munitions Response Program

Total AEDB-R MMRP Sites/AEDB-R sites with Response Complete: 2/1

AEDB-R Site Types

2 Firing Ranges

Most Widespread Contaminants of Concern: Arsenic, Lead, OE

Media Of Concern: Soil, Groundwater, Surface water

Completed REM/IRA/RA:

None

Total MMRP Funding

Prior years (up to FY05):	\$	0
Current Year (FY06):	\$	258,000
Future Requirements (FY07+):	\$	15,097,000
Total:	\$	15,355,000

Duration of MMRP

Year of MMRP Inception: 2002

Year of MMRP RIP/RC: 2017

Year of MMRP Completion Including LTM: 204709 (with indefinite LUCs)

MMRP Contamination Assessment

MMRP Contamination Assessment Overview

Two MMRP sites have been identified at Makua Military Reservation. However, site MAKU-001-R-01 was determined to be on an operational range area and therefore is ineligible for Military Munitions Response Program funding. This document will discuss the eligible range, MAKU-002-R-01 which is adjacent to Makua Valley, the operational range.

MMRP Cleanup Exit Strategy

The SI is currently underway. The RI is scheduled to begin in FY10 to determine what further action will be necessary for the site.

2002

- Final CTT Inventory Report, TechLaw, October

MAKUA MILITARY RESERVATION

Military Munitions
Response Program
Site Descriptions

MAKU-002-R-01

MAKUA TRAINING AREA (TD) (Page 1 of 2)

SITE DESCRIPTION

This site extends west from the western side of the installation boundary and also extends to the north of the northern side of the installation boundary. Based on a clearance document from 1950, it appears that this area, and much of the area surrounding it, was used for a variety of WW II training. A document entitled "Historical Review of Corps of Engineers United States Army General Operations during WWII Pacific Ocean Area" revealed that beach assaults also occurred along the coastline of Makua Military Reservation. Furthermore, historical documents confirmed that amphibious assault training occurred on the western boundary of the installation, along the Pacific Ocean.

After the bombing of Pearl Harbor on December 7, 1941, the Army took over the entire Makua-Ka'ena Point area for security and training operations. In December 1942 the Army issued a Real Estate Directive for 6,600 acres of land in the Makua area for continued use as a training area. As part of this directive private parcels of land within the Makua area were taken by condemnation, whereas territorial lands were conferred by the territorial governor's consent (Onyx, 2001). A series of real estate actions that occurred during 1964 resulted in the current 4,190-acre mixture of leased, ceded, and fee-simple land holdings that does not include these CTT range areas. The terms of the lease allow public access to Makua Beach (Onyx, 2001).

The entire Makua Valley is an area used for aerial helicopter gunnery maneuvers, and is used by Army, Hawaii National Guard, and the U.S. Marine Corps for small arms and artillery firing, helicopter gunnery practice, and tactical live-firing exercises. The area was originally used for training from 1941 to 1949. Invasion training activities included naval aerial bombing of the area, while battleships shelled from the ocean and troops from amphibious craft landed on the beach (ESE, 1984). Between 1949 and 1951 range clearing operations were conducted to remove unexploded bombs and shells from training operations on the range. Range activities continued in the early 1950s to prepare for the Korean conflict.

Interviewees stated that most of this training occurred for deployment to Korea and Vietnam and that after WW II, this area would have mostly been used for maneuvering with pyrotechnics and artillery firing positions with no live ammunition.

STATUS

REGULATORY DRIVER: CERCLA

RAC Score: 3 - Moderate

CONTAMINANTS OF CONCERN:
Potential for Lead, Arsenic, OE

MEDIA OF CONCERN: Soil,
Surface Water, and Groundwater

PHASES	Start	End
PA	200204	200305
SI	200601	200712
RI/FS	200810	200909
RD	201510	201609
RA(C)	201610	201709
LTM	201710	204709

RC DATE: 201709

MAKU-002-R-01

MAKUA TRAINING AREA (TD) (Page 2 of 2)

According to a May 1950 clearance document, the following items were found in the entire Makua Area: 4.5" and 2.36" rockets; 60 mm, 81 mm, 3-inch Mortar HE shells; 37 mm shot; 20mm cartridges; HE rifle grenades; 100 to 500 pound bombs (general purpose and practice); bomb fuses; 10,000 rounds of assorted live small arms ammunition ranging from .22 caliber to .50 caliber; 75 mm, 90mm, 105 mm, 155mm HE shells; and hand grenades. Based on interviews, it is assumed that the adjacent area was used primarily in the 1940s. The boundary of this range was based on these documents and interviews.

The approximate 2400 acres was formally returned to the state in 1964 and is the focus of the MMRP investigation. This portion of the training area was not used as the primary target.

CLEANUP STRATEGY

A SI is underway. The RI will begin in FY10 to determine what further action will be necessary for the site.

Initiation of MMRP: 2002

Past Phase Completion Milestones

PA - 200305

Projected ROD/DD Approval Dates: Unknown

Projected Construction Completion: 201709

Schedule for Five Year Reviews: Unknown

Estimated Completion Date of MMRP including LTM: 204709 with Indefinite LUCs

MMRP Costs

Prior Years Funds

Total Funding up to FY04: \$ 0

Year	Site Information	Expenditures	FY Total
Total Funding FY05: \$ 0			

Current Year Requirements

Year	Site Information	Expenditures	FY Total
FY06	SI		\$ 258,000

Total Funding FY06: \$ 258K

Total Future Requirements: \$15,097K

Total MMR Program Cost (from inception to completion of the MMRP): \$15,355K

There is currently no RAB at this installation. However, interest will be solicited once the RI begins.